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A Data Sheet is included for each line item on the purchase order.

Document numbers are listed at the bottom of the Data Sheet.

Any one drawing may apply to more than one item number.

All documents are assembled in alpha/numeric order within each section

- DATA SHEETS
- INSTALLATION DRAWINGS
- CROSS SECTION DRAWINGS
- RECOMMENDED SPARE PARTS
- MATERIALS OF CONSTRUCTION

PROTECH SALES USA CORP  
SHELLIE JONES  
12340 Mead Way  
Littleton, CO 80125  
USA

QUOTE NUMBER 23770

I.D. (Rep. Use) SPJ

REV

PROJ. MINE APPLICATION

FACT. ITEM	CUST. ITEM	QTY	DESCRIPTION
1	1	1	KGC,12,ES,F1,S2,SMP,S2-M*MN-HD16-S1
<b>STYLE</b>	KGC		Cast Knife Gate Valve
<b>Size</b>	12		12 Inch
<b>BODY STYLE</b>	ES		Extended Service Valve
<b>End Connection</b>	F1		Flanged Drilling; ASME 125/150
<b>Body Material</b>	S2		316 Stainless Steel Cast
<b>Packing</b>	SMP		PTFE Braided Packing to 500° F. (260° C.); (page 0-14)
<b>Gate Material</b>	S2		316 Stainless Steel
<b>Seat Material</b>	M		Metal
<b>Coating or Paint</b>	4G0		3 mils minimum (non-stainless steel parts) of enamel on Exterior and
<b>ACTUATOR TYPE</b>	MN-HD16-S1		STANDARD (SP10) SURFACE PREP Handwheel; 16 In Dia; 304 Stainless Steel

## RELATED DOCUMENTS

A059091  
A046357  
A047223  
D010411  
D010079

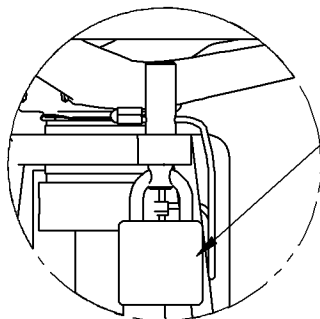
DWG INST KGC ES MN-HD 10&12"  
DWG VALVE ASSY 2-24" 150 FL KGV  
DWG ACT HDWHL/CHWHL KGC  
IM VALVE KGC ES/HD 2-24  
IM ACT MANUAL C&L GV

VALVE SIZE		DIMENSIONS <small>INCHES MILLIMETERS</small>												
INCH	MM	A	B	C	D	E	F	G	H	J	K	L	M	N
10	250	<u>14.25</u> 362	7/8-9 UNC	8	4	<u>.33</u> 8	<u>8.00</u> 203	<u>.75</u> 19	<u>2.75</u> 70	<u>8.25</u> 210	<u>16.38</u> 416	<u>39.13</u> 994	<u>30.00</u> 762	<u>16.00</u> 406
12	300	<u>17.00</u> 432	7/8-9 UNC	8	4	<u>.33</u> 8	<u>9.50</u> 241	<u>.75</u> 19	<u>3.00</u> 76	<u>8.25</u> 210	<u>19.00</u> 483	<u>44.75</u> 1137	<u>33.63</u> 854	<u>16.00</u> 406

A	VALVE
B	ACTUATOR

NOTE:

1. VALVE IS SHOWN IN CLOSED POSITION.
2. VALVE ORDERED WITH THRU BOLTING HAVE ALL HOLES, EXCEPT THOSE THAT ARE BLIND TAPPED, DRILLED TO ANSI STANDARDS CLASS 125 & 150.
3. DRAWING SHOWS FLANGES TAPPED FOR THE USE WITH ANSI FLANGES, FOR USE WITH OTHER THAN ANSI FLANGES SEE A-52587.
4. VEE ORIFICE OPTION IS SHOWN ON DRAWING WITH PHANTOM LINES.
5. INSTALL THE VALVE WITH THE HIGHER PRESSURE AGAINST THE SIDE OPPOSITE THE SEAT WHEN THE VALVE IN CLOSED; EXCEPT AT THE BOTTOM OF DRY MATERIAL STORAGE VESSELS WHERE THE VALVE SHOULD BE INSTALLED WITH THE SEAT UPWARD.

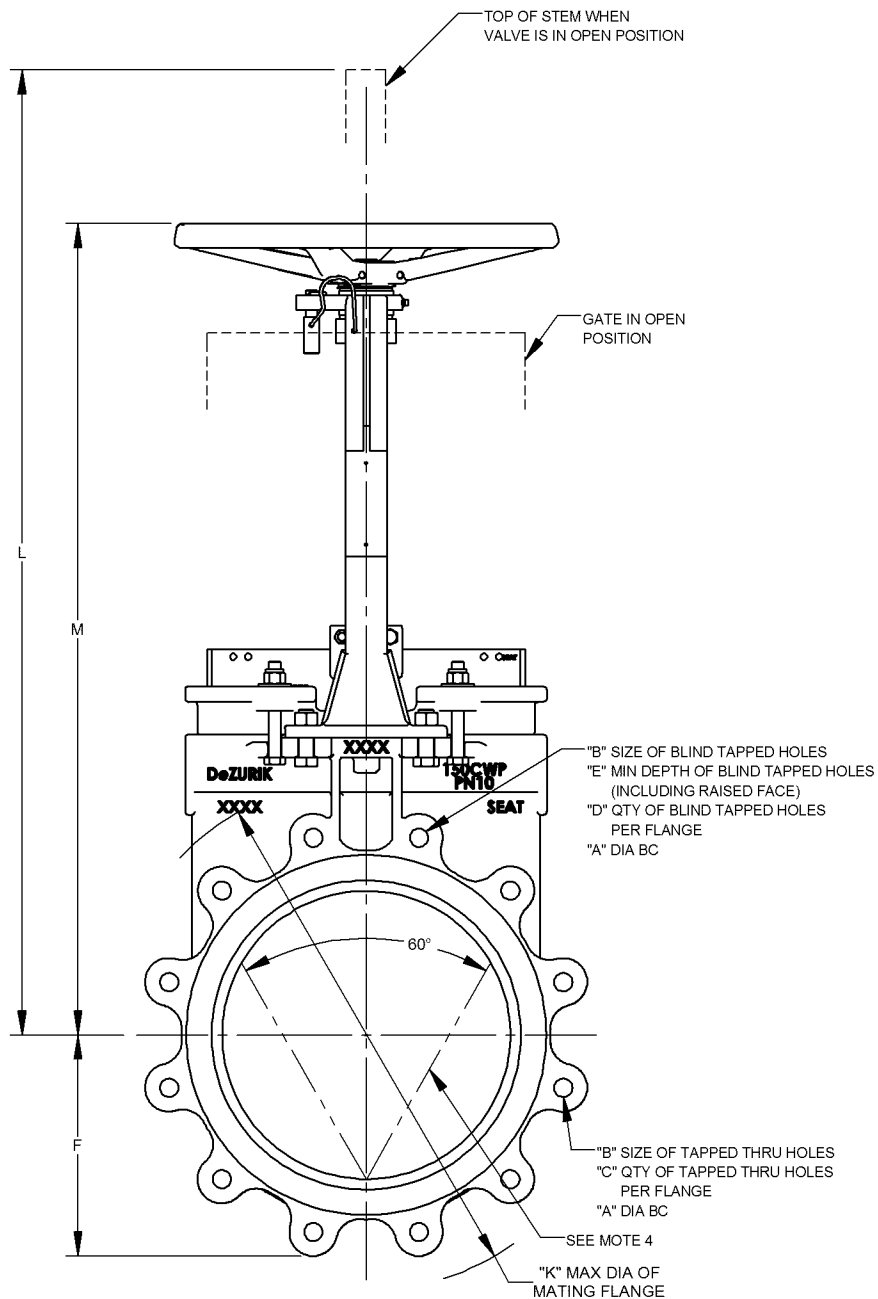
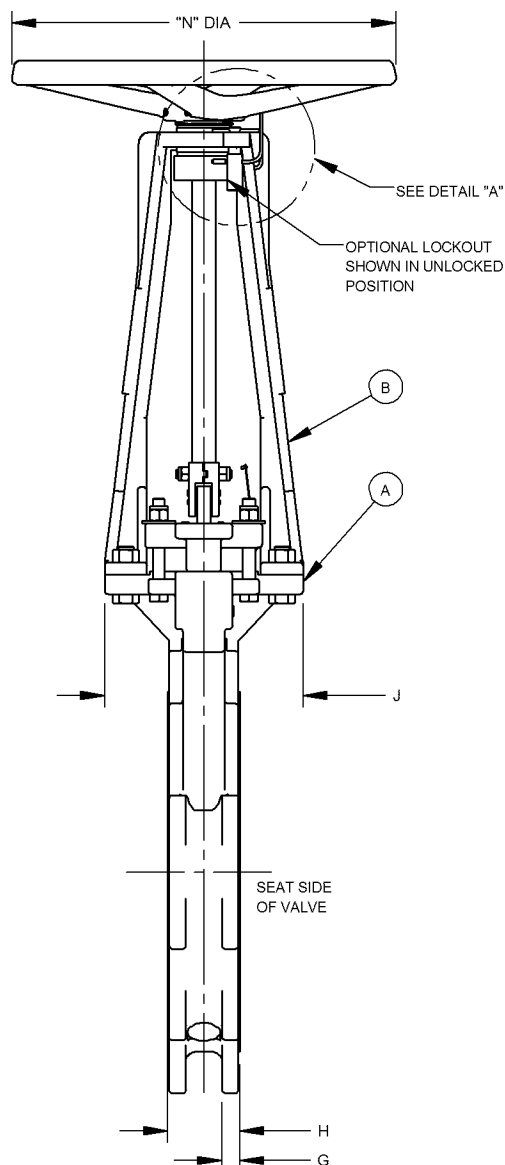


DETAIL "A"  
OPTIONAL LOCKOUT  
SHOWN IN LOCKED POSITION

PADLOCK FURNISHED  
BY CUSTOMER

### NOTICE

THIS DRAWING DOES NOT SHOW ACTUATOR ACCESSORIES, IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY INSTALLATION DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.



REVISIONS		
REV.	DESCRIPTION	DATE
A	P.C.N. 62428	1/17/2013
B	P.C.N. 62561	02/02/2015

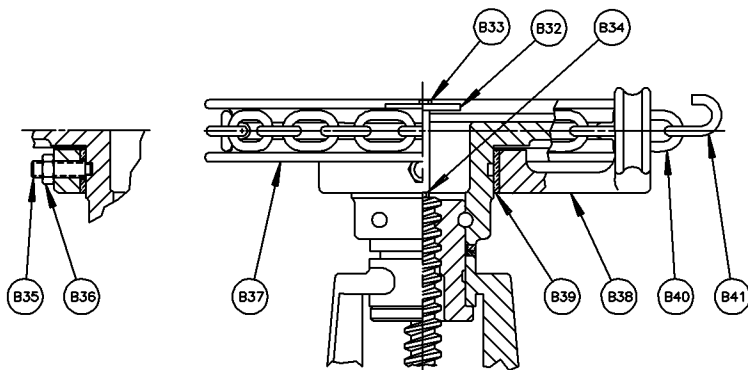
**DeZURIK**  
Sartell, MN USA 56377  
www.dezurik.com

KGC ES KNIFE GATE VALVES SIZE 10 - 12  
MN-HD\_ HANDWHEEL ACTUATED

DOCT CODE	DRAWN	FHH	APPROVED	RT
C1	CHECKED	RT	DATE	4/20/12

A59091



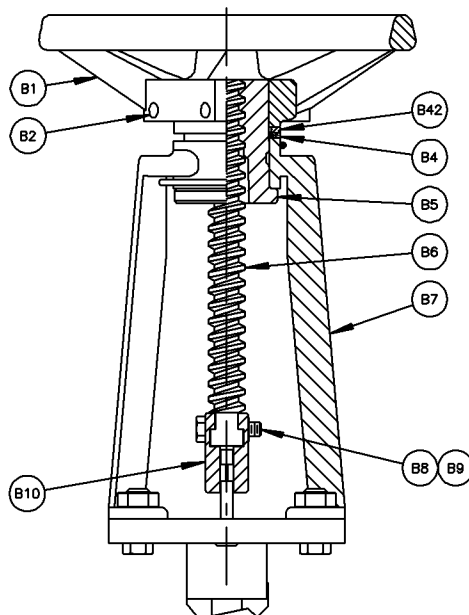


MN-CW\_ CHAINWHEEL ACTUATOR

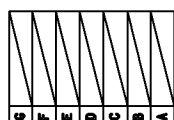
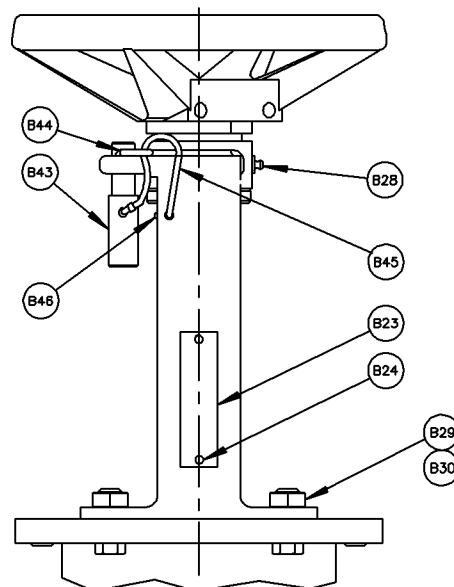
NO	PART NAME	QTY
B1	HANDWHEEL	1
B2	PIN	2
B4	THRUST BEARING	1
B5	YOKE SLEEVE	1
B6	STEM	1
B7	YOKE	1
B8	SCREW	2
B9	LOCK NUT	2
B10	CLIP	2
B23	DATA PLATE	1
B24	POP RIVET	2
B28	GREASE FITTING	1
B29	SCREW	4
B30	NUT	4
B32	RETAINING WASHER (MN-CW_ONLY)	1
B33	SCREW (MN-CW_ONLY)	1
B34	NUT (MN-CW_ONLY)	1
B35	SET SCREW (DOG POINT)	2
B36	LOCK NUT	2
B37	CHAINWHEEL	1
B38	CHAIN GUIDE	1
B39	BEARING	1
B40	CHAIN	-
B41	CLOSING LINK	1
B42	WAVE WASHER	1
B43	LOCKOUT PIN (MN-HD_ ONLY)	1
B44	PIN (MN-HD_ ONLY)	1
B45	CABLE (MN-HD_ ONLY)	-
B46	CABLE CLAMP (MN-HD_ ONLY)	2

NOTE:

1. WHEN ORDERING PARTS, SPECIFY VALVE SIZE AND MODEL NUMBER FROM DATA PLATE, ALSO GIVE DRAWING NUMBER WITH PART NAME, ITEM NUMBER AND QUANTITY.
2. RECOMMENDED SPARE PARTS ARE ITEMS NO. B2, B4 AND B35.
3. OPTIONAL LOCKOUT PARTS B43, B44, B45 AND B46 ARE FURNISHED WHEN LK (LOCKOUT) ACCESSORIES ORDERED.



MN-HD\_ HANDWHEEL ACTUATOR



**DeZURIK**  
Sartell, MN USA 56377  
www.dezurik.com

MN-HD\_ HANDWHEEL ACTUATOR & MN-CW\_ CHAINWHEEL ACTUATOR  
AND OPTIONAL LOCKOUT FUW 2 - 12 KGC KNIFE GATE VALVES

DOCT. CODE	DRAWN	APPROVED
C1	JJD	DLT
CHECKED	CS	DATE
		06/18/02

A-47223

PDF

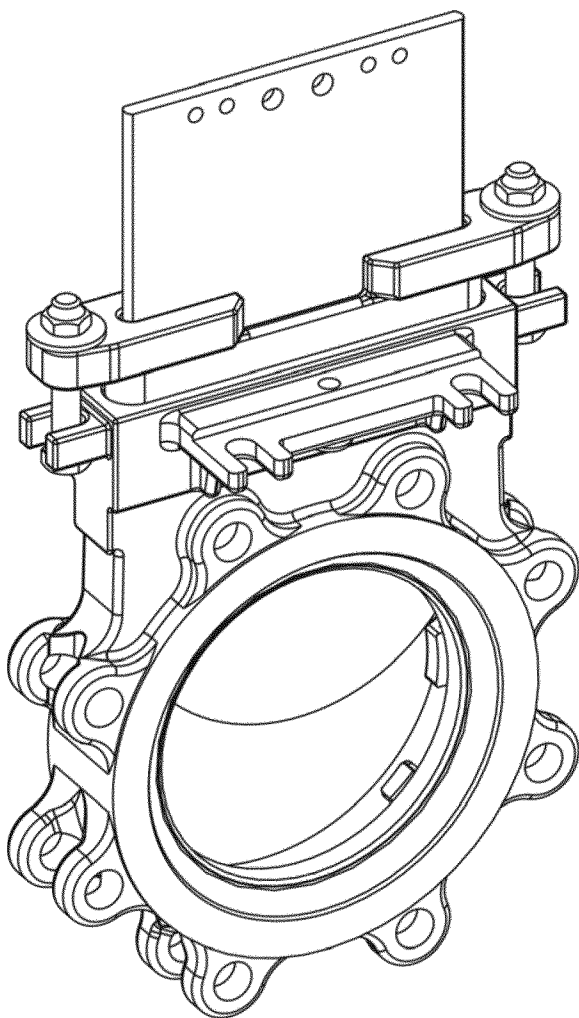


**DEZURIK**

**2-24" (50-600mm)**

**KGCES or HD**

**KNIFE GATE VALVES**



Instruction **D10411**

July 2013



# DeZURIK

## 2-24" KGC ES or HD KNIFE GATE VALVES

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### Instructions

These instructions are intended for personnel who are responsible for the installation, operation and maintenance of your KGC knife gate valve, including models KGC-ES, KGC-HD, KGC-GV, KGC-MV and KGC-SV in sizes 2-24".

### Safety Messages

All safety messages in the instructions are flagged with the word Caution, Warning or Danger. These messages must be followed exactly to avoid equipment damage, personal injury or death.

Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death. If a safety label becomes difficult to see, or if a label has been removed, please contact DeZURIK for replacement.



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#### **WARNING**

**Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of process material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous process materials. Handle valves which have been removed from service with the assumption of process material within the valve.**

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### Inspection

Your KGC knife gate valve has been packaged to provide protection during shipment. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

### Parts

Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime.

Order parts from your DeZURIK sales representative, or directly from DeZURIK. When ordering parts, please include the 7-digit part number and 4-digit revision number (example: **9999999R000**) located on the data plate attached to the valve assembly. Also include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

### DeZURIK Service

DeZURIK Service personnel are available to install, maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services. For more information, contact your local DeZURIK representative or visit our website at [www.dezurik.com](http://www.dezurik.com).

# DeZURIK

## 2-24" KGC ES or HD KNIFE GATE VALVES

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## Description

KGC knife gate valves have a stainless steel body and gate, and an all-metal or resilient-faced seat. The KGC knife gate valve is available in 2-48" (50-1200mm) sizes. This manual covers the 2-24" (50-600mm) sizes. A choice of several actuators and accessories is available.

## Installation

Install the valve between ANSI Class 125 or Class 150 pipeline flanges, or other flanges that match valve end connection. Flange gaskets are required. Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the valve and pipeline.

### Normal Installations

Install the valve so that the side marked "SEAT" is on the lower pressure side of the valve when the valve is closed; the pipeline pressure will then help seal the valve in the closed position.

### Gravity (Dry) Service Installations

When installing the valve in a vertical pipeline (such as a hopper bottom, gravity flow, or other dry service application), install the SEAT side of the valve facing upstream as shown in Figure 1. Installing the valves with the seat side upstream prevents process media buildup in the seat and chest area of the valve. This orientation also allows the seat to act as an integral deflection cone, protecting the seat from wear.

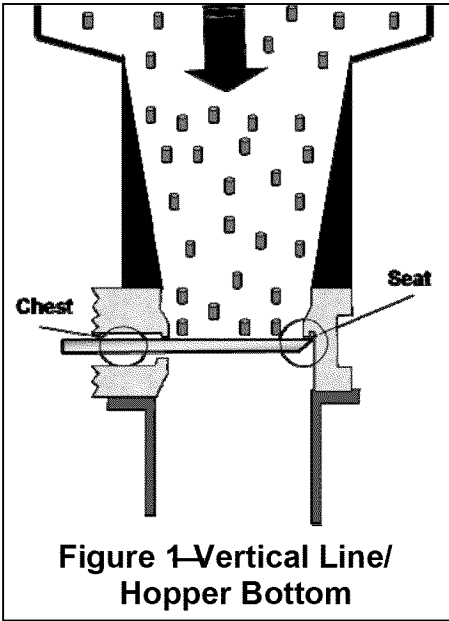
### General Guidelines

Observe the following points to prevent distortion of the valve body and gate when the flange bolts are tightened:

- ☐ Align the mating pipeline flanges.
- ☐ Select the length of the flange bolts so that the bolts used in the blind holes near the chest area of the valve do not bottom out when tightened. We recommend using studs with nuts in the blind holes.
- ☐ Tighten the flange bolts evenly, in a crisscross pattern. Refer to Table A for recommended flange bolt/stud torques.

**Note:** Torque ranges are based on ASME Pressure Vessel Code Calculations and lab test data. These torques are only for the listed gasket types. For other gasket types listed in ASME, consult DeZURIK.

After installing the valve, pressurize pipeline and ensure the packing is not leaking. If the packing leaks, adjust the packing as described on the next page.



**Table A: Recommended Flange Bolt/Stud Torque Range in ft-lbs (non-lubricated)**

Valve Size	ASME Gasket Types	
	Rubber with Soft Fabric Filler, & 1/8" Thick Hard	Soft Elastomer Gasket Shore Durometer < 75A
2" (50mm)	26 - 29	8 - 9
3" (80mm)	37 - 41	14 - 16
4" (100mm)	26 - 29	11 - 12
6" (150mm)	41 - 45	22 - 24
8" (200mm)	55 - 61	35 - 39
10" (250mm)	56 - 62	40 - 44
12" (300mm)	80 - 88	59 - 65
14" (350mm)	107 - 118	81 - 89
16" (400mm)	103 - 114	79 - 87
18" (450mm)	128 - 141	102 - 112
20" (500mm)	123 - 136	99 - 109
24" (600mm)	188 - 207	155 - 171

## Operation

The gate in the valve is positioned by the valve actuator. The actuator moves the gate over the valve port in the closed position, and withdraws the gate from the seat in the open position. Refer to the Actuator Instructions for adjustment and maintenance requirements for the actuator.

## Lubrication

The valve does not require lubrication. Refer to the Actuator Instructions for lubrication requirements for the actuator.

## Packing

The gate packing is contained and compressed by the packing gland. See Figure 2 for component identification.

**Note:** The packing gland is slightly loosened prior to shipping. This is done to increase the life of the packing during extended storage.

## Adjustment

If packing leaks, tighten the adjustment nuts on top of the packing gland. Tighten the nuts evenly and gently just enough to stop the leak. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

Drawings

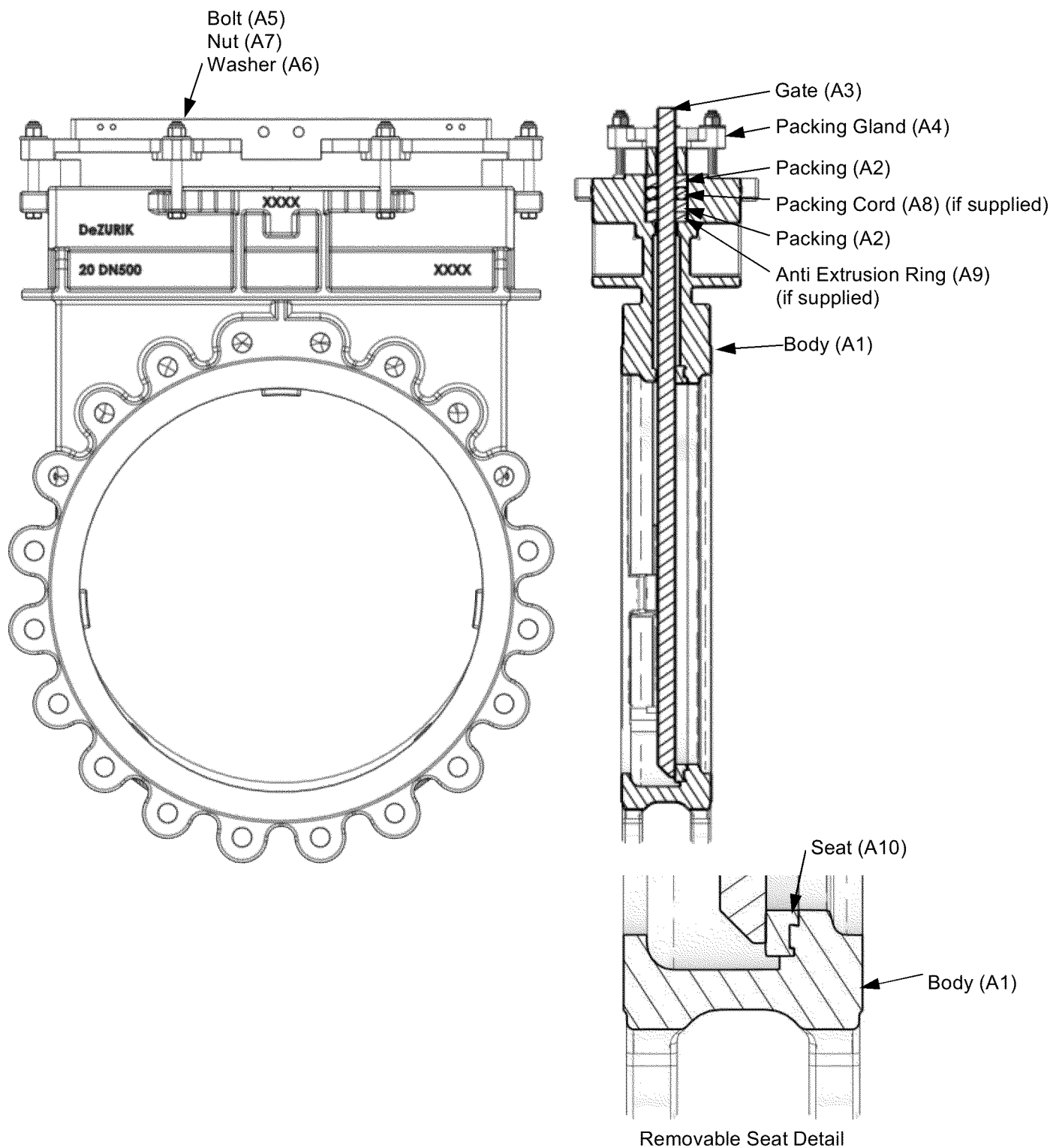


Figure 2—Component Identification

## Packing Replacement

### *Removing the Old Packing*



**WARNING!**

Pipeline pressure can cause personal injury or equipment damage. Relieve pipeline pressure before removing gate stem and packing gland nuts.

---

1. Relieve the pressure in the pipeline and close the valve.
- 



**WARNING!**

Accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.

---

2. If the actuator is powered, disconnect and lock out power to prevent accidental operation of the actuator.
3. Remove the two screws and nuts near the top of the gate and disengage the stem from the gate by stroking the actuator (not the valve) to the open position.
4. Remove the gland nuts (A7), bolts (A5) and packing gland (A4).
5. Remove the used packing (A2), anti-extrusion ring (A9) if supplied and packing cord (A8) if supplied, from the packing chamber.

# DeZURIK

## 2-24" KGC ES or HD KNIFE GATE VALVES

### Installing the New Packing

Packing (A2) strip length and quantity are shown in Table B. Ensure the inside and outside edges of each ring are packed against the gate and packing chamber, so that each strip is compressed flat and evenly.

Do not compress the packing any more than needed to stop leaks.

1. Ensure the gate (A3) is fully closed and centered in the body before packing.
2. If used, place the anti-extrusion ring (A9) or scraper ring in the bottom of the packing chamber.

**Note:** Ensure that the anti-extrusion ring fits tightly around the gate and that there is approximately 1/32-1/16" clearance around the packing chamber.

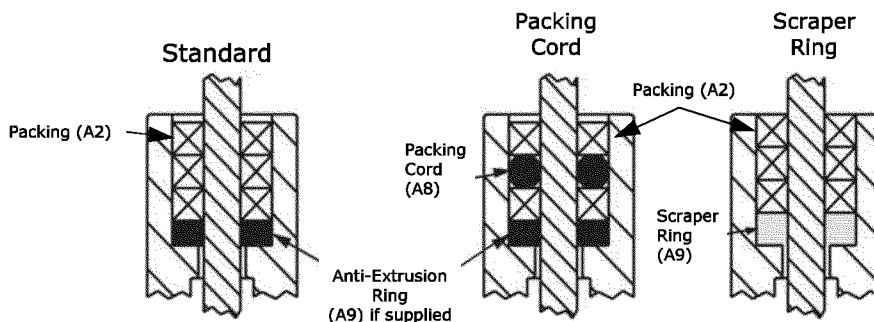
3. Assemble and pack the rings one at a time, with the ends together, but not overlapped

**Note:** Stagger the joints, on the long side of the packing chamber. For packing rings, we recommend using a square-ended wood or plastic tool, driven by a hammer or mallet. Do not use a sharp tool to pack the rings.

4. For packing systems with the packing cord (A8), assemble and pack one row of packing (A2) and then insert the packing cord (A8). Assemble and pack the last row of packing. See detail below:

**Table B: Packing Ring and Packing Cord Length & Quantity**

Valve Size	Square Size	Length, inches	Quantity	Qty Cord
2" (50mm)	3/8"	7.50	4 w/o anti-ext ring or cord	1
3" (80mm)		9.50		
4" (100mm)		11.50		
5" (125mm)		13.50		
6" (150mm)		15.50		
8" (200mm)		20.00		
10" (250mm)	1/2"	25.00	3 w/o cord	
12" (300mm)		29.00		
14" (350mm)		32.00		
16" (400mm)		36.75		
18" (450mm)	5/8"	41.25	2 with cord	
20" (500mm)		45.25		
24" (600mm)		53.50		



**Figure 3-Packing Ring Detail**

### **Reassembling Valve**

1. Replace the packing gland (A4), bolts (A5), washer (A6) and nuts (A7). Tighten the nuts evenly and finger tight, plus 1/2 turn.
2. Reconnect the stem to the gate with the two screws and nuts.
3. If the actuator is a powered actuator, reconnect power to the actuator.
4. Pressurize the pipeline and inspect packing for leakage.
5. If packing leaks, tighten the adjustment nuts on top of the packing gland. Tighten the nuts evenly and gently - just enough to stop the leak. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

### **Replacing the Seat**

See Figure 2 for component identification.



**WARNING!**

**Pipeline pressure can cause personal injury or equipment damage. Relieve pipeline pressure before removing gate stem and packing gland nuts.**

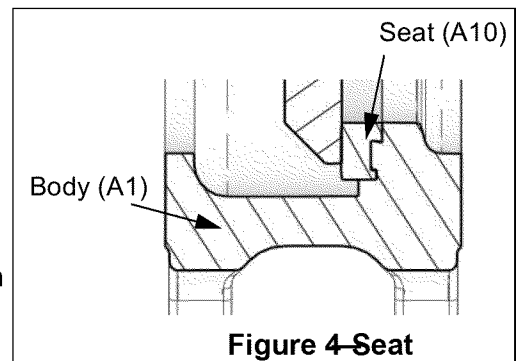
1. Relieve the pressure in the pipeline and close the valve.



**WARNING!**

**Accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.**

2. If the actuator is powered, disconnect and lock out power to prevent accidental operation of the actuator.
3. Remove the two screws and nuts near the top of the gate and disengage the stem from the gate.
4. Remove the pipeline flange bolts and flange from the side of the valve body opposite the word "SEAT". As an alternative, remove both flanges, and remove the valve from the pipeline.
5. Remove the actuator yoke and actuator from the valve.
6. Remove the gland nuts (A7), washers (A6), and packing gland (A4).
7. Remove the gate (A3) from the body.
8. Remove the packing (A2) from the packing chamber.
9. Remove the seat. Push the top of the removable seat (A10) toward the center of the valve, and remove the seat through the packing chamber.
10. Install the new replaceable seat:
  - a. Note the gate side and body side of the seat as shown in Figure 4.
  - b. Insert the new seat (A10) through the packing chamber.
  - c. Place the seat behind the lug at the 5 and 7 o'clock positions in the body. Then push the top of the seat into position.



**Figure 4-Seat**

### Seat Replacement *Continued*

#### Reassembling the Valve

1. Reassemble the gate (A3) in the body, with the beveled edge facing away from the resilient seat. See Figure 4.
2. Place the gate in the fully closed position.
3. Reassemble the packing, as described in "Installing New Packing".
4. Reassemble the packing gland (A4), washers (A6), nuts (A7) and bolts (A5). Tighten the nuts evenly to finger tight, plus 1/2 turn.
5. Reassemble the yoke and actuator on the valve.
6. Reconnect the stem to the gate with the two screws and locknuts.
7. Reassemble the pipeline flange and flange bolts, or reassemble the valve in the pipeline if the valve was removed. Refer to the requirements in the "Installation" section.
8. If the actuator is a powered actuator, reconnect power to the actuator.
9. Pressurize the pipeline and inspect the valve for leaks.
10. If the packing leaks, tighten the adjustment nuts (A7) on top of the packing gland. Tighten the nuts evenly and slowly, just enough to stop the leakage. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

### Replacing the Gate

See Figure 2 for component identification.



#### **WARNING!**

**Pipeline pressure can cause personal injury or equipment damage. Relieve pipeline pressure before removing gate stem and packing gland nuts.**

---

1. Relieve the pressure in the pipeline and close the valve.



#### **WARNING!**

**Accidental operation of power actuator can cause personal injury or equipment damage. Disconnect and lock out power to actuator before servicing.**

---

2. If the actuator is powered, disconnect and lock out power to prevent accidental operation of the actuator.
3. Remove the pipeline flange bolts, and remove the valve from the pipeline.
4. Remove the actuator, actuator yoke, packing gland (A4), and packing (A2) from the valve.
5. Remove and inspect the gate (A3). If the gate appears to be scratched or galled due to too-long flange bolts in the chest area of the body, check for body damage in the tapped flange holes and within the chest cavity. Carefully check the seat for damage. Repair or replace the body, as appropriate.

### **Gate Replacement    *Continued***

6. Remove    and inspect the seat components.
7. Replace    or reinstall the seat components as described in step 10 in the "Seat Replacement " section.
8. Place    the new gate (A3) in the body, in the fully closed position.
9. Replace    or reinstall the packing (A2) as described in "Installing New Packing".
10. Replace the yoke and actuator on the valve.
11. Adjust the actuator, yoke, and packing gland so that the valve actuates smoothly full stroke in both directions, and so that there is no evidence of binding or scratching on the gate when the gate is visible in the fully open position.
12. Reinstall the valve in the pipe line —see "Installation" section.
13. If the actuator is a powered actuator, reconnect power to the actuator.
14. Pressurize the pipeline and inspect the valve for leaks.
15. If the packing leaks, tighten the adjustment nuts (A7) on top of the packing gland.

**Note:** Tighten the nuts evenly and slowly, just enough to stop the leakage. Over tightening will cause excessive operating forces, and will decrease the life of the packing.

### **Purge Port Option**

When purge port options are ordered as illustrated, the intent is that the installer will connect purge lines.



#### **WARNING!**

**If pipeline is under pressure with purge port plugs in place, release line pressure before removing plugs. Serious or fatal injury may occur if not complied with.**

---

Installation:

1. Remove    all purge plugs after valve has been installed in line and before line is pressurized.
2. Connect    proper purge line to the ports.
3. Pressurize    purge lines and check for leaks.
4. Pressurize    pipe line.

See Figure 5 for Purge Port sizes and locations.



Purge Port Options

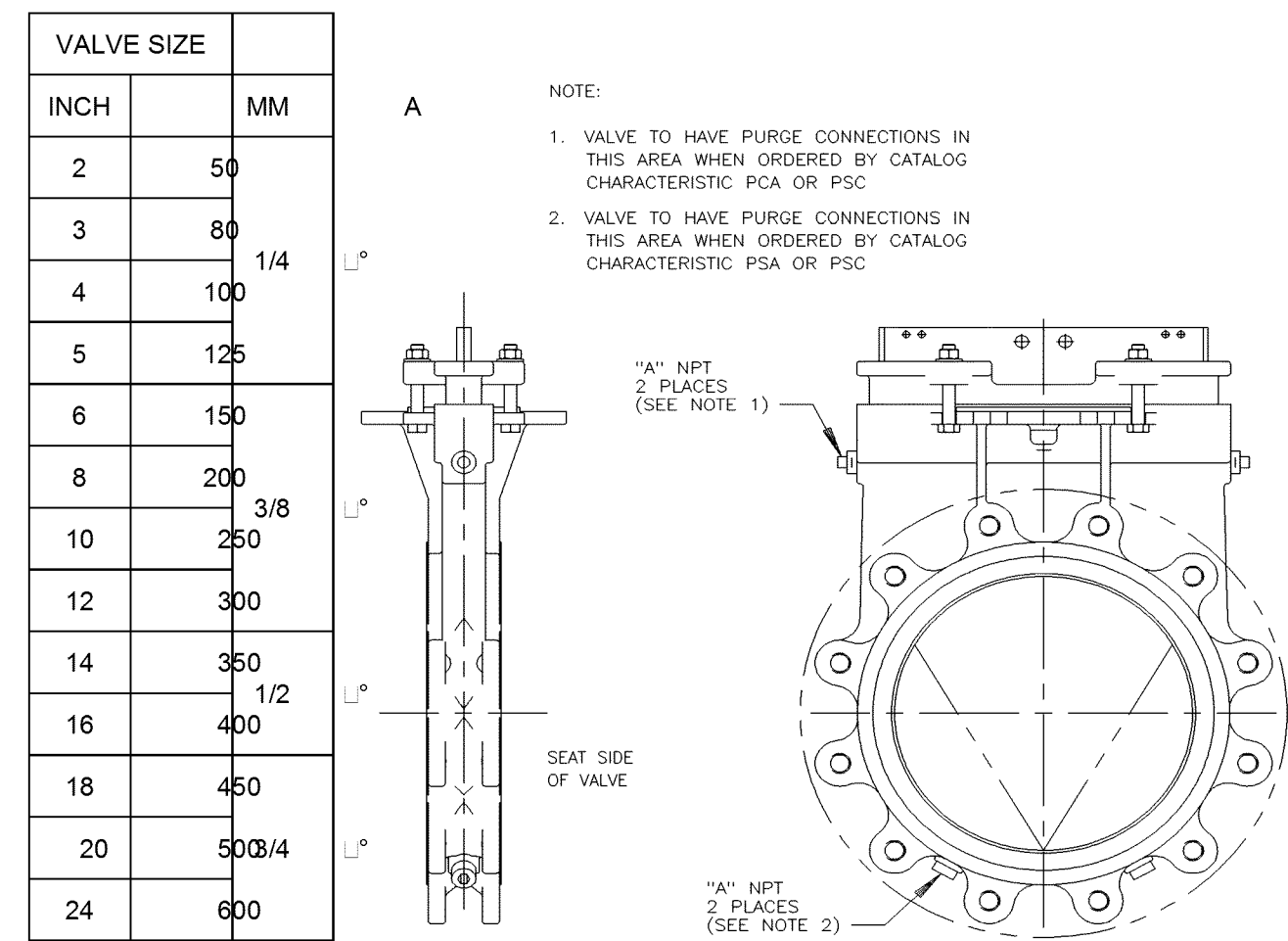


Figure 5-Purge Port Sizes and Locations

## Troubleshooting

Condition	Possible Causes	Corrective Action
Packing leaks, with no evidence of galling on gate	Packing is loose Adjust	packing gland
	Packing is worn or torn	Replace packing
Packing leaks and gate is galled	Packing is worn or torn	Replace packing and gate, check seat for damage
Valve leaks when fully closed, with no evidence of galling on gate	Seat is worn or torn	Replace seat
Valve leaks when fully closed and gate is galled	Seat is worn or torn	Replace gate and seat

## Guarantee

Products, auxiliaries and parts thereof of DeZURIK, Inc. manufacture are warranted to the original purchaser for a period of twenty-four (24) months from date of shipment from factory, against defective workmanship and material, but only if properly installed, operated and serviced in accordance with DeZURIK, Inc. recommendations. Repair or replacement, at our option, for items of DeZURIK, Inc. manufacture will be made free of charge, (FOB) our facility with removal, transportation and installation at your cost, if proved to be defective within such time, and this is your sole remedy with respect to such products. Equipment or parts manufactured by others but furnished by DeZURIK, Inc. will be repaired or replaced, but only to the extent provided in and honored by the original manufacturers warranty to DeZURIK, Inc., in each case subject to the limitations contained therein. No claim for transportation, labor or special or consequential damages or any other loss, cost or damage shall be allowed. You shall be solely responsible for determining suitability for use and in no event shall DeZURIK, Inc. be liable in this respect. DeZURIK, Inc. does not guarantee resistance to corrosion, erosion, abrasion or other sources of failure, nor does DeZURIK, Inc. guarantee a minimum length of service. Your failure to give written notice to us of any alleged defect under this warranty within twenty (20) days of its discovery, or attempts by someone other than DeZURIK, Inc. or its authorized representatives to remedy the alleged defects therein, or failure to return product or parts for repair or replacement as herein provided, or failure to install and operate said products and parts according to instructions furnished by DeZURIK, Inc., or misuse, modification, abuse or alteration of such product, accident, fire, flood or other Act of God, or failure to pay entire contract price when due shall be a waiver by you of all rights under this warranty.

The foregoing guarantee shall be null and void if, after shipment from our factory, the item is modified in any way or a component of another manufacturer, such as but not limited to, an actuator is attached to the item by anyone other than DeZURIK, Inc. Factory Service personnel. All orders accepted shall be deemed accepted subject to this limited warranty, which shall be exclusive of any other or previous Warranty, and this shall be the only effective guarantee or warranty binding on DeZURIK, Inc., despite anything to the contrary contained in the purchase order or represented by any agent or employee of DeZURIK, Inc., in writing or otherwise, notwithstanding, including but not limited to implied warranties.

THE FOREGOING REPAIR AND REPLACEMENT OBLIGATIONS ARE IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS AND LIABILITIES, INCLUDING ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR OF MERCHANTABILITY OR OTHERWISE, EXPRESSED OR IMPLIED IN FACT OR BY LAW, AND STATE DEZURIK, INC.'S ENTIRE AND EXCLUSIVE LIABILITY AND YOUR EXCLUSIVE REMEDY FOR ANY CLAIM IN CONNECTION WITH THE SALE AND FURNISHING OF SERVICES, GOODS OR PARTS, THEIR DESIGN, SUITABILITY FOR USE, INSTALLATION OR OPERATIONS.

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LIMITATION OF LIABILITY: IN NO EVENT SHALL DEZURIK, INC. BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, AND DEZURIK, INC.'S LIABILITY, UNDER NO CIRCUMSTANCES, WILL EXCEED THE CONTRACT PRICE FOR THE GOODS AND/OR SERVICES FOR WHICH LIABILITY IS CLAIMED. ANY ACTION BY YOU FOR BREACH OF CONTRACT MUST BE COMMENCED WITHIN 12 MONTHS AFTER THE DATE OF SALE.



## Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

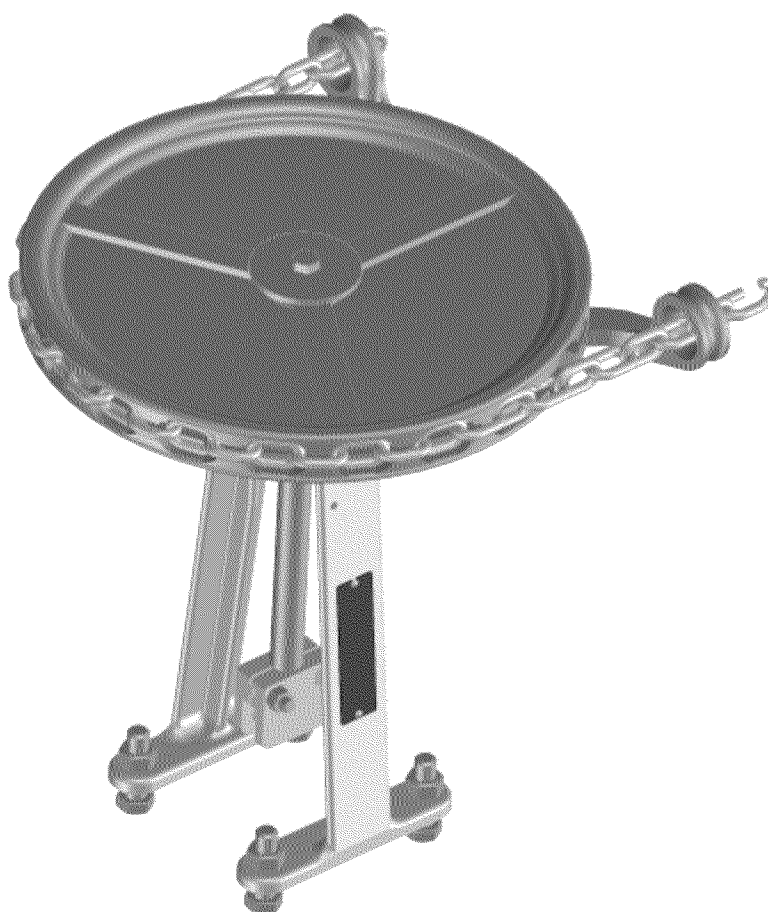
Web site: [www.dezurik.com](http://www.dezurik.com) E-Mail: [info@dezurik.com](mailto:info@dezurik.com)

250 Riverside Ave. N. Sartell, Minnesota 56377 Phone: 320-259-2000 Fax: 320-259-2227

*DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this manual, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.*



# MANUAL ACTUATOR FOR KNIFE GATE VALVES



Instruction **D 1 0 0 7 9**  
November 2013

 **DeZURIK** | **APCO** | **HILTON** | **WILLAMETTE**

# DeZURIK

## Manual Actuator for Knife Gate Valves

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### Instructions

These instructions are intended for personnel who are responsible for the installation, operation and maintenance of your manual actuator.

### Safety Messages

All safety messages in the instructions are flagged with the word Caution, Warning or Danger. These messages must be followed exactly to avoid equipment damage, personal injury or death.

Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death. If a safety label becomes difficult to see, or if a label has been removed, please DeZURIK for replacement.



#### **WARNING!**

**Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of process material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous process materials. Handle valves which have been removed from service with the assumption of process material within the valve.**

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### Inspection

Your manual actuator has been packaged to provide protection during shipment. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

### Parts

Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime.

Order parts from your DeZURIK sales representative, or directly from DeZURIK. When ordering parts, please include the 7-digit part number and 4-digit revision number (example: **9999999R000**) located on the data plate attached to the valve assembly. Also include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

### DeZURIK Service

DeZURIK service personnel are available to install, maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services. For more information, contact your local DeZURIK sales representative or visit our website at [www.dezurik.com](http://www.dezurik.com).

### Lubrication

Lubricate the fitting near the top of the yoke monthly with a lithium-based grease.

### Operation

#### **Lever Actuator**

1. Loosen the lock screw near the top of the yoke.
2. Move the lever to open or close the valve.
3. Tighten the lock screw to hold the valve in the desired position.

#### **Handwheel, Chainwheel and Bevel-Gear Actuators**

Rotate the handwheel or chainwheel clockwise to close the valve.

**Note:** There is an arrow cast on the wheel to indicate direction of rotation.

### Removing Actuator

1. Close the valve.
2. Disconnect the stem from the gate by removing the two screws and nuts.
3. Remove the screws securing the actuator yoke to the valve, then separate the actuator from the valve.

### Actuator Installation

1. Close the valve.
2. Set the actuator on the valve and secure it in place with the screws.
3. Connect the stem to the gate with two screws and nuts.

### Mounting Handwheel

#### **2-12" C-Series, KBD, KGC, KGL, KGU, KGS, KSV and KUL Valves**

Two Spirol® pins are used to connect the handwheel to the yoke sleeve. The use of any other type of pin will result in actuator failure.

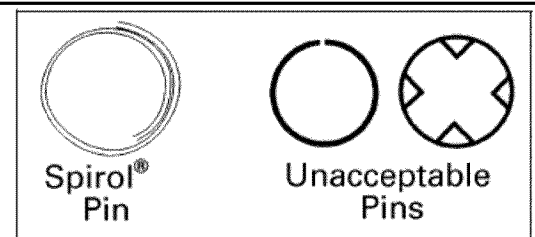
1. Rotate the yoke sleeve until the flange on the yoke sleeve touches the yoke.
2. Place the thrust washer and the wave washer over the yoke sleeve.
3. Set the handwheel in place. Turn the wheel so the holes in the wheel line up with the pin ways in the yoke sleeve.
4. Insert a 5/16"-diameter bolt in one of the holes.

**Note:** This will prevent misalignment. If the holes are not aligned the pin ways in the yoke sleeve could be damaged by the Spirol® pins.



#### **WARNING!**

This actuator has been designed to use only heavy-duty Spirol® brand pins. The use of any other type of pin will result in actuator failure. See Figure 1.



**FIGURE 1– Pin Designs**

5. Drive a Spirol® pin into the remaining hole in the wheel until the end of the pin is flush with the outer surface of the wheel.
6. Remove the 5/16" bolt installed in Step 4, and drive a Spirol® pin into the hole.
7. Lubricate the actuator as described in the LUBRICATION section of these instructions.

### Mounting Chainwheel

#### 2-12" C-Series, KBD, KGC, KGL, KGU, KGS, KSV and KUL Valves

Two Spirol® pins are used to connect the chainwheel to the yoke sleeve. The use of any other type of pin will result in actuator failure.

1. Rotate the yoke sleeve until the flange on the yoke sleeve touches the yoke.
2. Place the thrust washer and the wave washer over the yoke sleeve.
3. Set the chainwheel in place. Turn the wheel so the holes in the wheel line up with the pin ways in the yoke sleeve.
4. Insert a 5/16"-diameter bolt in one of the holes.

**Note:** This will prevent misalignment. If the holes are not aligned the pin ways in the yoke sleeve could be damaged by the Spirol® pins.



#### WARNING!

This actuator has been designed to use only heavy-duty Spirol® brand pins. The use of any other type of pin will result in actuator failure. See Figure 2.

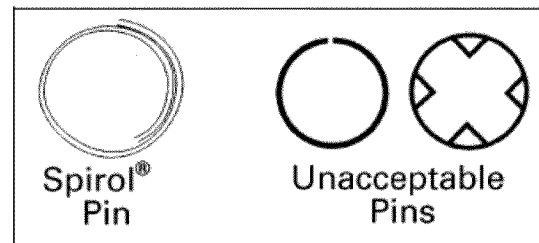


FIGURE 2-Pin Designs

5. Drive a Spirol® pin into the remaining hole in the wheel until the end of the pin is flush with the outer surface of the wheel.
6. Remove the 5/16" bolt installed in Step 4, and drive a Spirol® pin into the hole.

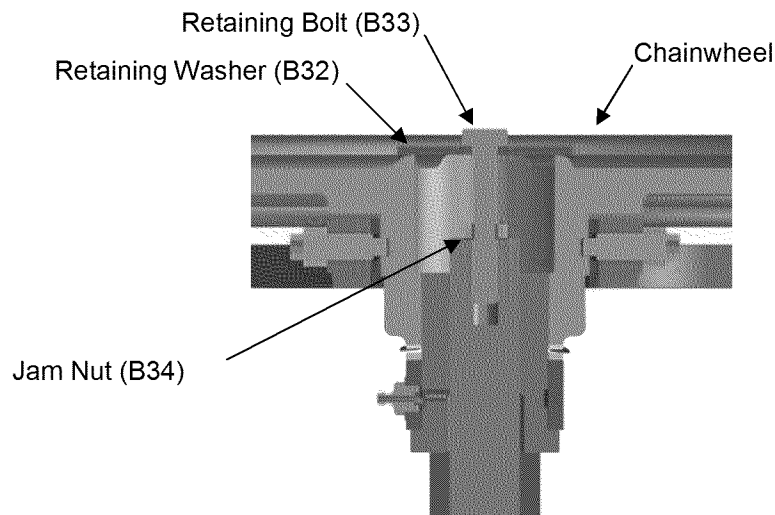


FIGURE 3-Detailed View of Chainwheel Retaining Components on 2-12" Valves

\*Spirol® is a registered trademark of CEM Corporation

### Mounting Chainwheel continued

7. As shown in Figure 3, insert the large hex-head retaining bolt (B33) through the 2.5-inch retaining washer (B32) and stake the washer to the head of the bolt. This keeps the washer from sliding down the shaft of the bolt when the valve is open (when the stem is extended upward).
8. Turn the 3/8-16 jam nut (B34) onto the retaining bolt/washer assembly. Turn the nut on far enough to allow the bolt to be fully inserted into the valve stem (detailed in the next step).
9. Turn the retaining bolt assembly into the tapped hole on the valve stem until it bottoms out.
10. Tighten the jam nut firmly against the valve stem. This prevents the retaining bolt assembly (and the chainwheel) from being dislodged if the two Spirol® pins are damaged or fatigued.
11. Lubricate the actuator as described in the LUBRICATION section of these instructions.

### Mounting Handwheel or Chainwheel on Large Valves

#### *14-24" KGC, KGL, KGU, KGS and KUL Valves only*

1. Rotate the yoke sleeve until the flange on the yoke sleeve touches the yoke.
2. Place the thrust washer over the yoke sleeve.
3. Install the woodruff key in the yoke sleeve keyseat.
4. Align the keyway in the wheel with the key in the yoke sleeve, then slide the wheel into the yoke sleeve until the wheel contacts the shoulder on the yoke sleeve.
5. On valves with a chainwheel actuator, slide the chain guide over the yoke sleeve so the guide loops are directly under the chainwheel.
6. Screw the nut onto the yoke sleeve to retain the wheel.
7. Pin the nut to the yoke sleeve.



# EQUIPMENT DATA FORM (MAINTENANCE SUMMARY FORM)

PROJECT: MINE APPLICATION
PURCHASE ORDER:
EQUIPMENT ITEM: 1
EQUIPMENT / TAG NUMBERS: 1 /
MANUFACTURER: DeZURIK
DESCRIPTION: KGC,12,ES,F1,S2,SMP,S2-M*MN-HD16-S1
MANUFACTURER'S LOCAL REPRESENTATIVE:
USA

## MAINTENANCE REQUIREMENTS

- DEZURIK RECOMMENDS EXERCISING YOUR VALVE EVERY 30 DAYS.
- VALVE LUBRICATION REQUIRED UPON DISASSEMBLY ONLY.
- FOR VALVE MAINTENANCE AND LUBRICATION REFER TO INSTRUCTION MANUAL(S):
- FOR ACTUATOR MAINTENANCE AND LUBRICATION REFER TO INSTRUCTION MANUAL(S):

## RECOMMENDED SPARE PARTS

SEE DRAWING

PART NO.	DESCRIPTION:	QTY	LINE
9545501	PACKING SQ 1/2 IN TFE	87	A02
9545501	12" RING ANTI-EXTRUSION	1	A09
9545501	PIN COIL 5/16X2-1/2 HD420	2	B02
9545501	BRG THR 1.875X2.187X.110	1	B04

For current spare parts pricing, contact local manufacturer's representative listed above.



## MATERIALS OF CONSTRUCTION

**DRAWING(S):** A46357

**DESCRIPTION:** KGC,12,ES,F1,S2,SMP,S2-M\*MN-HD16-S1

ITEM	Material
A01	STAINLESS STEEL, ASTM A351, TYPE CF-8M, CERTIFIED
A02	PACKING, SQUARE BRAID, TFE YARN, DEZURIK TYPE T
A03	STAINLESS STEEL, TYPE 316, ASTM A240, CERTIFIED
A04	STAINLESS STEEL, ASTM A351, TYPE CF-8M, CERTIFIED
A05	STAINLESS STEEL, TYPE 18-8
A06	STAINLESS STEEL, TYPE 18-8
A07	STAINLESS STEEL, TYPE 18-8
A09	TEFLON, GLASS FILLED